Oregon Coast coho salmon ESU

Hatchery Program Assessment

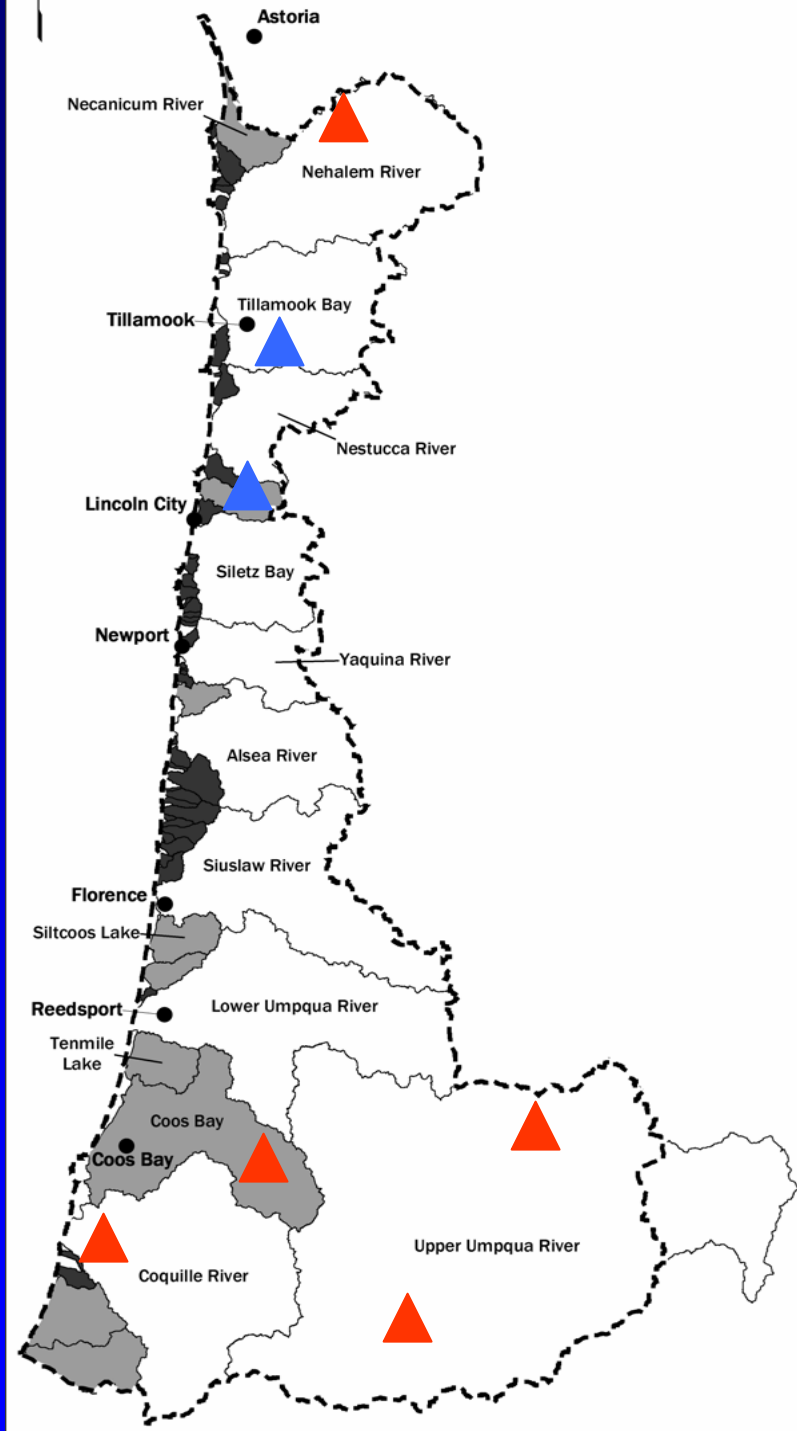
Lance Kruzic
Salmon Recovery Division

Oregon Coast ESU

- 19 TRT "functionally" and "potentially" independent populations. (48 additional dependent pops)
- 5 hatchery stocks included ESU
- 2 hatchery stocks not included
- 7 populations have direct hatchery influence

▲ Hatchery stock included ESU

▲ Hatchery stock not included ESU



Oregon Coast coho ESU

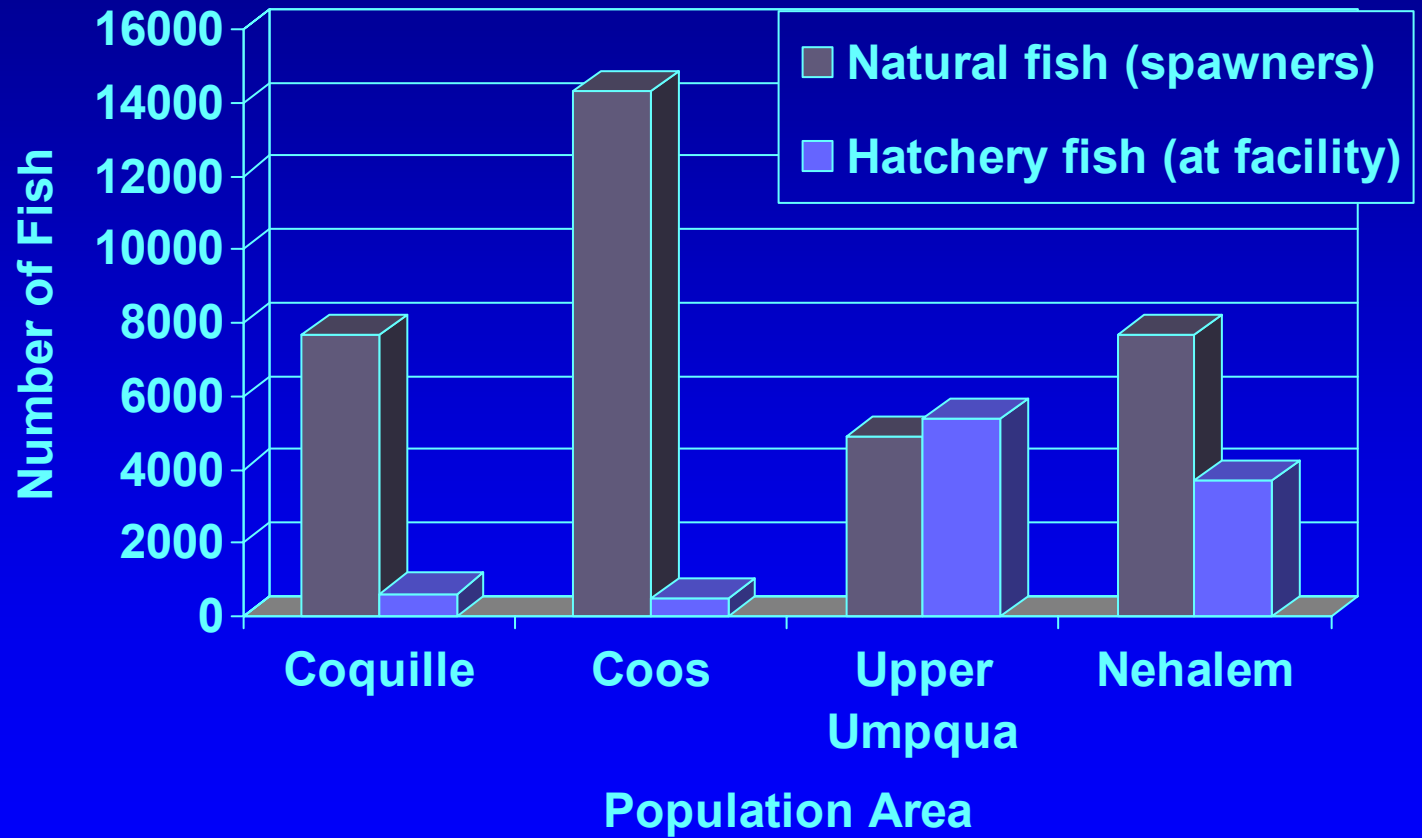
- Oregon Coast Coho Included in the ESU
  - Coquille natural and Coquille hatchery program
  - Coos natural and Coos hatchery program
  - Upper Umpqua natural, Rock Cr. hatchery program, and Cow Cr. hatchery program
  - Nehalem natural and NF Nehalem hatchery program
  - And 12 other natural populations with no hatchery programs
- Oregon Coast Coho NOT Included in the ESU
  - Salmon hatchery program
  - Trask hatchery program

Oregon Coast Coho ESU

Population area (hatchery stock)	Isolated or integrated	Program type	Purpose	Production goal	In operation since
Artificial Propagation Programs that Produce Fish Included in ESU					
Coquille (Coquille)	Integrated	Smolt	Harvest	50,000	1979
Coos (Coos)	Integrated	Smolt	Harvest	120,000	1985
Upper Umpqua (Cow)	Integrated	Smolt	Mitigation	60,000	1987
Upper Umpqua (Rock)	Integrated	Smolt	Harvest	62,500	1920
Nehalem (NF Nehalem)	Integrated	Smolt	Harvest	200,000	1966
Artificial Propagation Programs that Produce Fish NOT Included in ESU					
Siletz (Salmon)	Isolated	Smolt	Harvest	50,000	
Salmon (Salmon)	Isolated	Smolt	Harvest	200,000	1976
Tillamook (Trask)	Isolated	Smolt	Harvest	200,000	1916

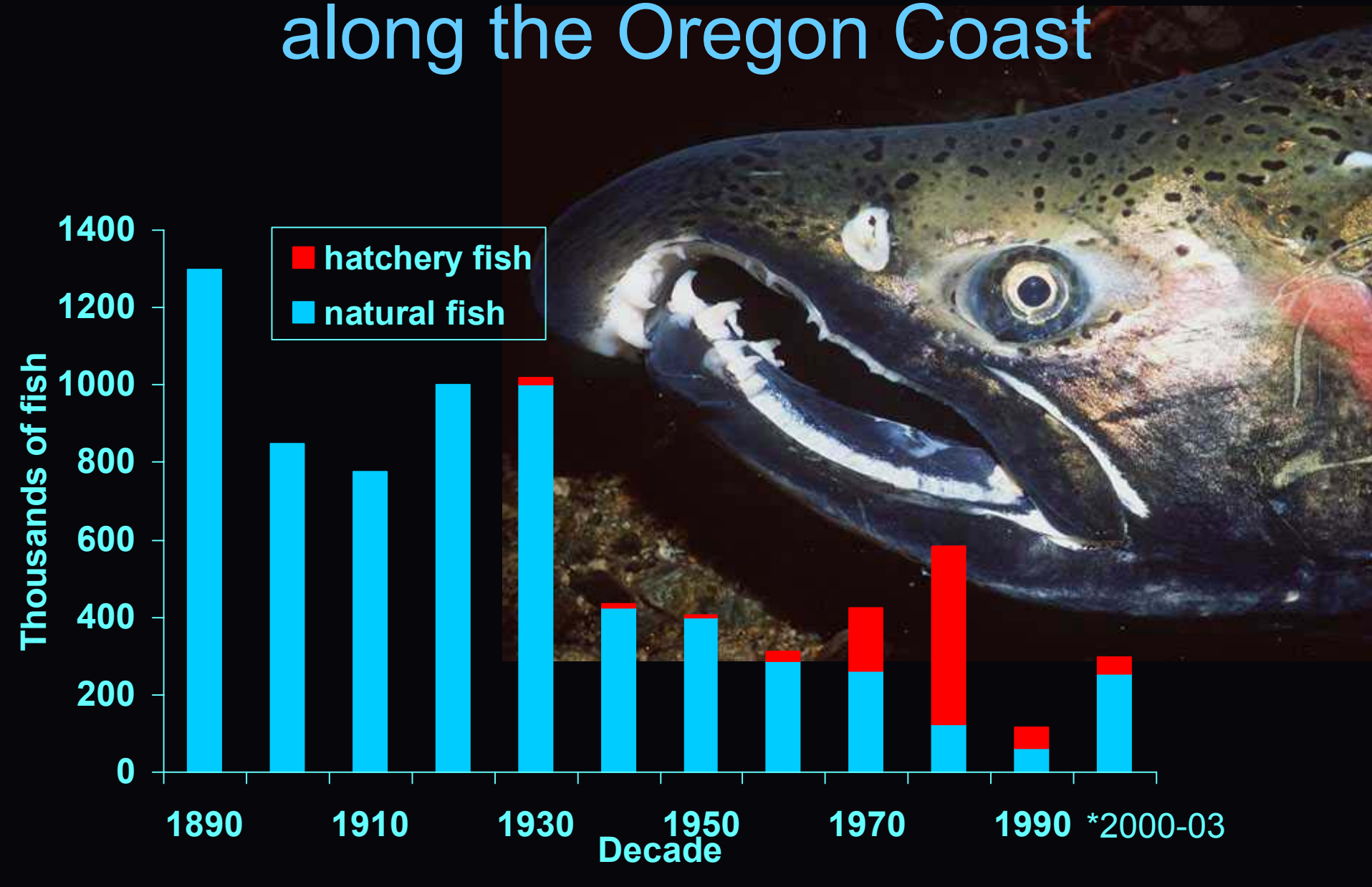
ESU SUMMARY: 19TRT "functionally" and "potentially" independent populations; 5 hatchery stocks included ESU; 2 hatchery stocks not included ESU; 7 pops. have program influences; 942,500 annual smolt production goal

Population Area Abundances (ESU hatchery stocks)

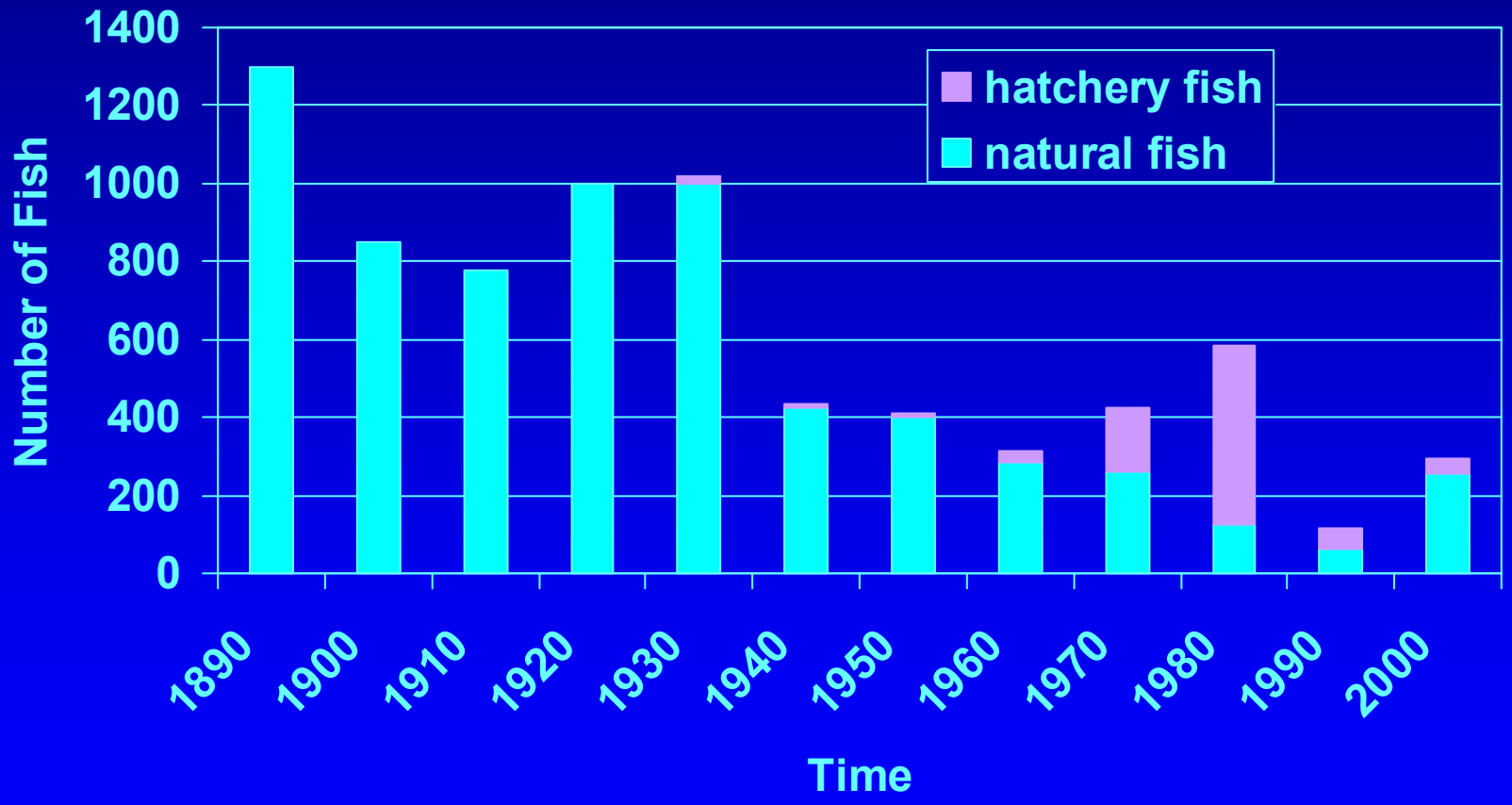


Mean natural fish from 1990-2003.

Estimated number of coho salmon along the Oregon Coast

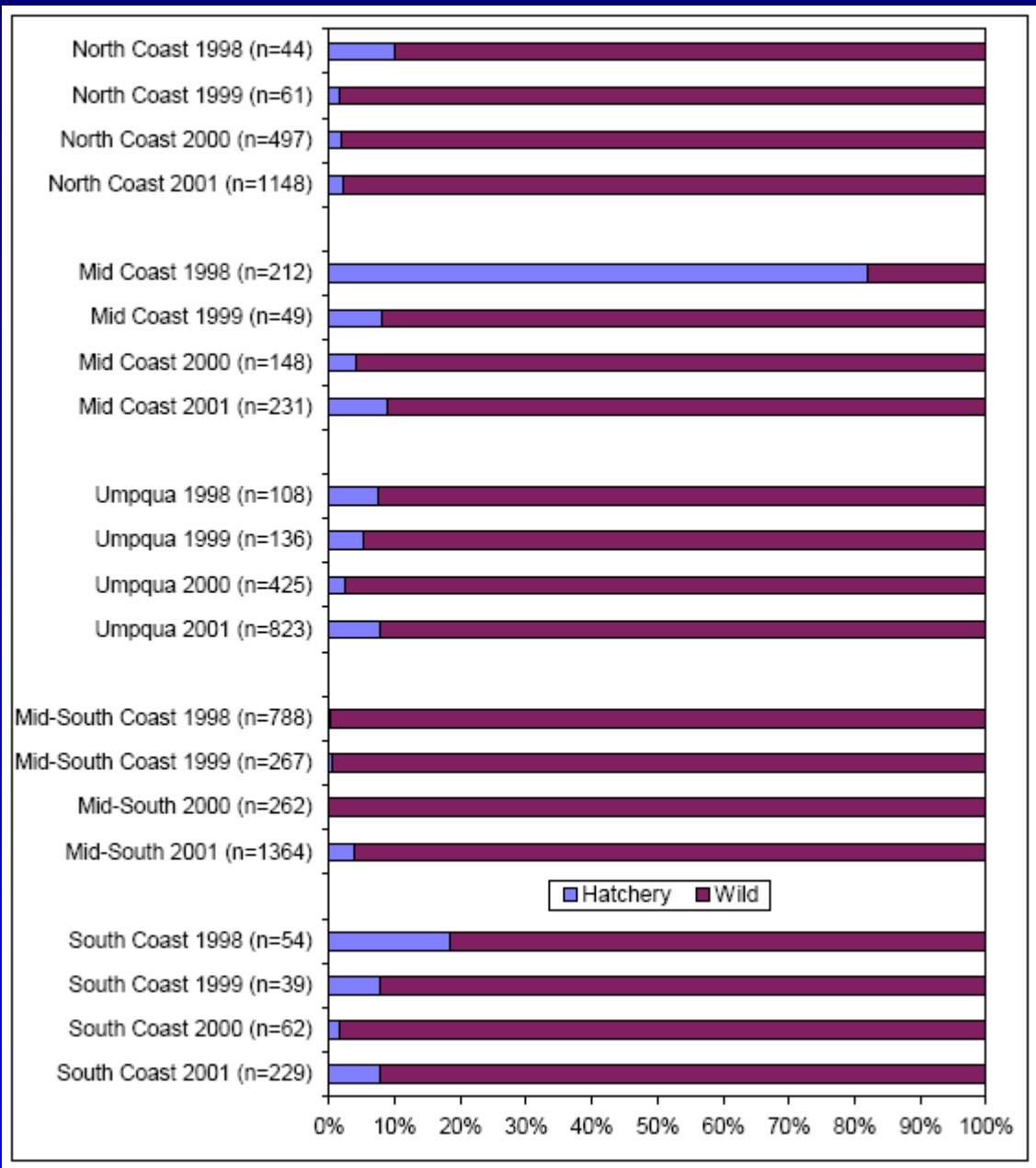


Number of coho salmon along the Oregon Coast (preharvest)



Origin of coho spawners 1998-2001

Taken from Oregon Plan for Salmon and Watersheds 2002-3 report.



"The effects of hatchery fish on the likelihood of extinction of an ESU, depend on how hatchery fish affect four key attributes"

Viable Salmon Populations

Abundance

Productivity

Spatial Structure

Diversity

Effect on Abundance

- Some benefit of the hatchery stocks that are included in the ESU on the total abundance of 4 populations.
- Few hatchery fish spawning naturally throughout the ESU in recent years.
- The hatchery programs included in the ESU could be used as a “reserve” for future recovery efforts.

Effect on Productivity

- Little to no benefit on the productivity of the ESU because few hatchery fish spawning naturally.
- Three of the four populations that have hatchery programs are some of the more abundant natural populations along the Oregon Coast (e.g. Coquille, Coos, Upper Umpqua).

Effect on Spatial Structure

- Little to no effect of the hatchery programs on the spatial structure of the ESU as a whole.
- Natural fish widely distributed.
- Some populations negatively affected by the operation of hatchery facilities and weirs.
- Most populations not affected at all by coho hatcheries.

Effect on Diversity

- Little to no benefit of the current hatchery programs on the diversity of the ESU as a whole.
- Some programs incorporating natural fish into broodstocks (beneficial).
- Two hatchery stocks have not included natural fish into the broodstock (risk).

Effect of Artificial Propagation on VSP Attributes Oregon Coast Coho Salmon

Viability Criteria	BRT VSP Risk Score	Decreases Risk	Neutral or Uncertain	Increases Risk
Abundance	1.9	√		
Productivity	3.2		√	
Spatial Structure	2.3		√	
Diversity	2.5		√	

BRT (2002) Finding: 0% E, 56% T, 44% NW

SRD Recommendation: No Change (Threatened)